OIPE JC100
APR 22 2004
PATENT & TRADEMARK OFFICE

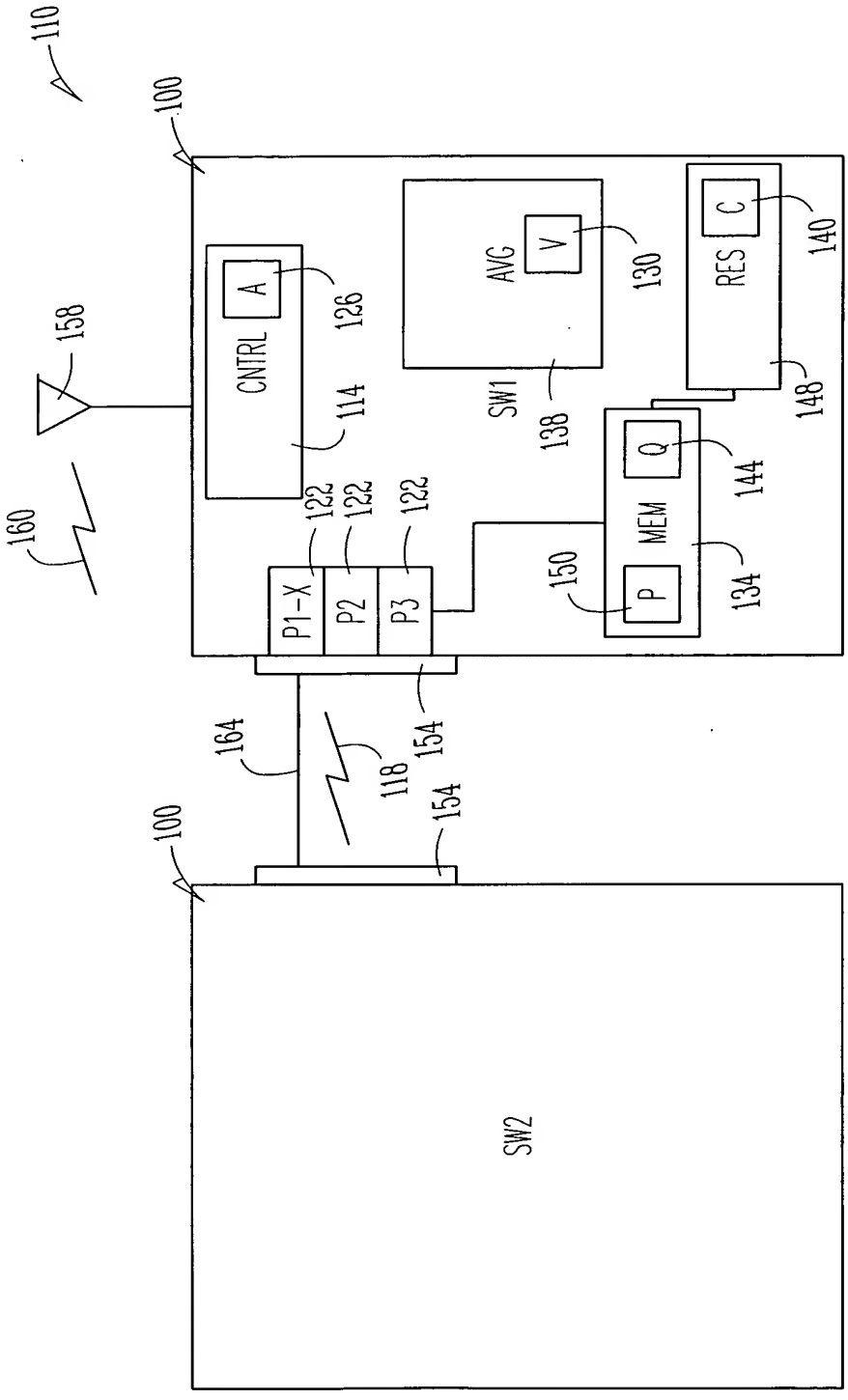

Fig. 1

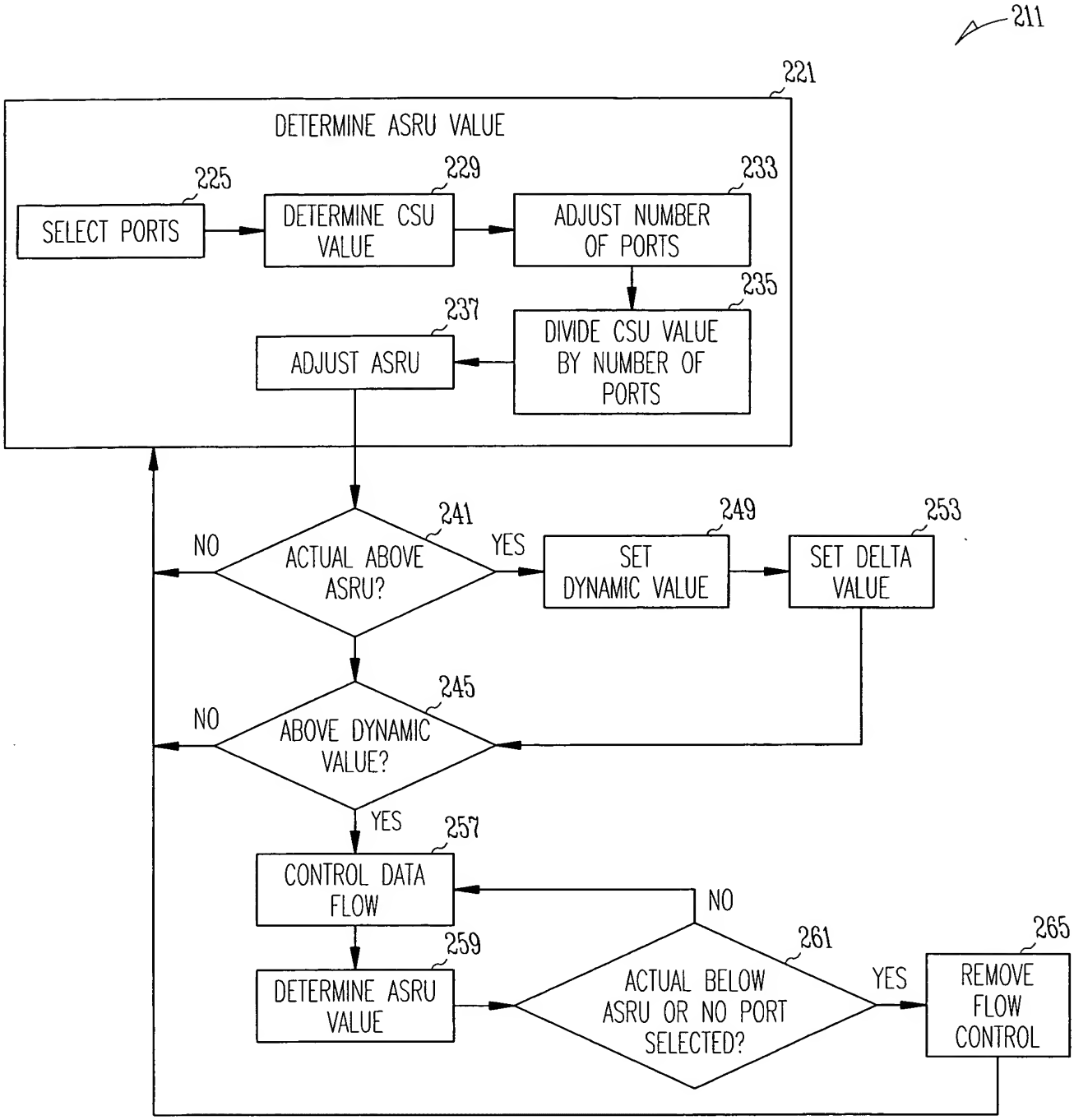
211
221
DETERMINE ASRU VALUE
225
SELECT PORTS
229
DETERMINE CSU VALUE
233
ADJUST NUMBER OF PORTS
235
DIVIDE CSU VALUE BY NUMBER OF PORTS
237
ADJUST ASRU
241
ACTUAL ABOVE ASRU?
NO
YES
249
SET DYNAMIC VALUE
253
SET DELTA VALUE
245
ABOVE DYNAMIC VALUE?
NO
YES
257
CONTROL DATA FLOW
259
DETERMINE ASRU VALUE
261
ACTUAL BELOW ASRU OR NO PORT SELECTED?
NO
YES
265
REMOVE FLOW CONTROL

Fig.2

370

372
PortRxUsage = Per Receive port utilization of memory
PortRxSharedUsage = (PortRxUsage > Tpmin) ? (PortRxUsage -Tpmin):0
CumulativeSharedUsage = SUM (PortRxSharedUsage)
Delta Value = Function(port speed, overall resource usage)

if (CumulativeSharedUsage is greater than a memory level for which adaptive flow control is enabled) 380
{
NumPortsInShared = count of all the ports which are using memory in shared space // Different speed ports are scaled accordingly. 10G is counted as 10 ports. This value is used to determine the average shared memory usage per 1G port.

AverageSharedUsage1G = [CumulativeSharedUsage /NumPortsInShared]
AverageSharedUsage10G = AverageSharedUsage1G * 10
DynamicThresh1G = AverageSharedUsage1G + Delta value
DynamicThresh10G = AverageSharedUsage10G + Delta value
DynamicThresh1Gdown = DynamicThresh1G - Delta value
DynamicThresh10Gdown = Dynamicthresh10G - Delta value
}

382
DynamicThresh = (Portspeed == 10G) ? DynamicThresh10G : DynamicThresh1G
DynamicThreshdown = (Portspeed == 10G) ? Dynamicthreshdown10G : DynamicThreshdown1G

if (PortRxSharedUsage >= DynamicThresh) 384
{// this port is consuming more than the average
AssertFlowControl;
FlowControlTime = 16'hFFFF or Function(PortRxSharedUsage - DynamicThresh)
}
else if (PortRxSharedUsage < DynamicThreshDown) or (PortRxUsage <= Tpmin) 386
{// this port is no longer causing congestion
DeassertFlowControl;
}

Fig. 3

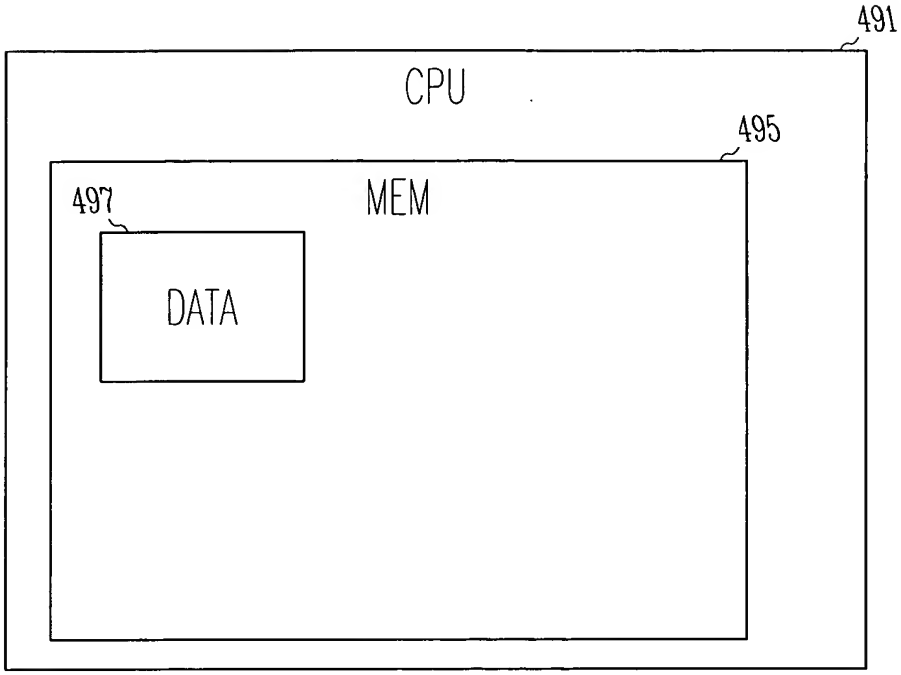

Fig. 4